

ABSTRACT

A stage assembly (220) for moving a device (200) includes a stage (208), an attraction-only type actuator pair (426) that moves the stage (208), and a control system (24). In one embodiment, the actuator pair (426) includes a first electromagnet (436F), a first conductor (438F) and a first target (440F) having a first target surface (442F). The actuator pair also includes a second electromagnet (436S), a second conductor (438S) and a second target (440S) having a second target surface (442S). The first electromagnet (436F) is positioned at a first angle θ_1 relative to a first target surface (442F) and the second electromagnet (436S) is positioned at a second angle θ_2 relative to the second target surface (442S). The control system (24) directs a first current to one or more of the electromagnets based on at least one of the angles θ_1 , θ_2 . Further, one or more electromagnets (436) can include a first measurement point and a second measurement point. The control system (24) can direct current to the actuator pair (426) based on the relative distance between the first and second measurement points and the corresponding target surface (442).

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